APPENDIX F

West Diversion – Provisions for Temporary Irrigation Water During Fish Screen Replacement

APPENDIX F

WEST DIVERSION – Temporary Irrigation Flows During Fish Screen Construction

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Modified by BPA

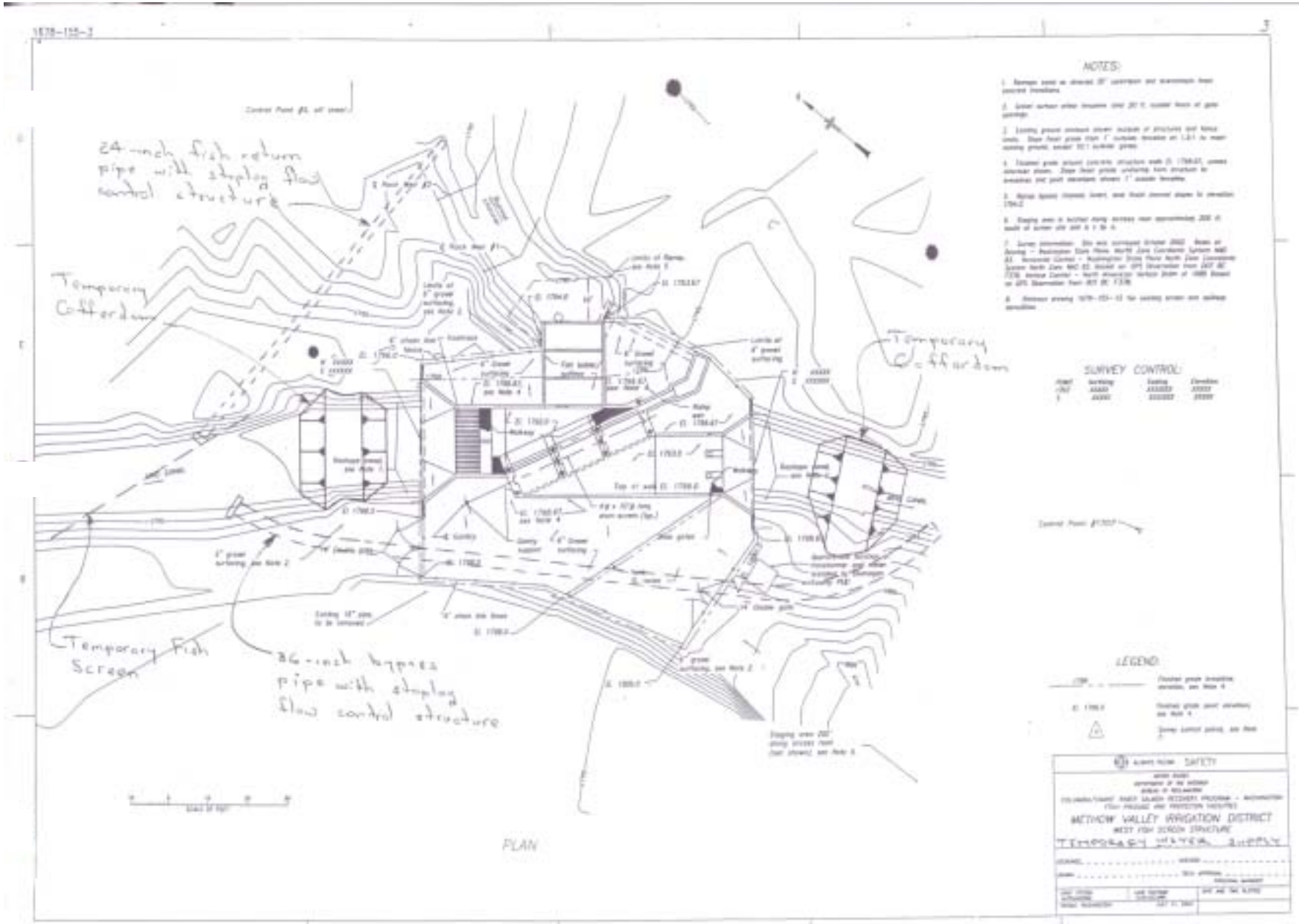
Between 20 and 25 cubic feet per second (cfs) of water will be required to meet irrigation system user demands beginning on May 1, 2004 and continuing until the new fish screens are operational on about June 15, 2004. If the construction time period extends beyond June 15, additional water, up to the water right of 30 cfs, may be required.

To supply this water, it is proposed to construct a temporary water supply system consisting of a fish screen, conveyance pipe, and fish return pipe at the project site. A plan of this system is shown on the attached drawing. The fish screens will be installed in the existing canal immediately upstream of the proposed fish screen structure. The screens will consist of three 8-foot high by 20-foot long synthetic mesh screen panels with 3/32-inch maximum size openings. The panels will be installed at an acute angle to the flow of the canal. The screens will be embedded a minimum of 1-foot into the canal bottom and banks to prevent fish from bypassing the screens. The screens will be held in position by a steel or timber structure that will also allow access for inspection of the screens. An automated air bubbler system will be provided to remove debris from the face of the screens. An air compressor, air receiver tank and electric control valves and a timer will provide air to a series of pipes located behind the fish screens. Small openings in the pipes will direct a jet of air towards the back of the fish screen to push debris from the face of the screen towards the canal where the current will carry the debris downstream.

A 24-inch diameter smooth interior, corrugated exterior, high density polyethylene pipe will return fish from the upstream end of the screens to the Twisp River via the existing bypass channel. The pipe will be buried between 4 and 6-feet deep and will be approximately 95-feet long. A stoplog flow control structure will regulate the water level in the canal and amount of flow returning to the river. A 36-inch diameter smooth interior, corrugated exterior, high density polyethylene pipe will extend from the downstream side of the fish screens to the existing canal, downstream of the new fish screen structure. The pipe will be buried between 5 and 8-feet deep to avoid interference with the proposed construction and will be approximately 190-feet long. A stoplog flow control structure will regulate the water level in the canal and allow the flow through the pipe to the canal to be adjusted. Sand, gravel and plastic sheet cofferdams will be constructed in the existing canal to prevent water from the canal from entering the excavation for the new fish screen structure. The flow into the canal from the Twisp River will be regulated by the existing headgate structure at the diversion from the river.

Once the new fish screens are operational, the ends of the 24-inch and 36-inch pipes will be cut off, capped and buried in the bank of the canal and the temporary fish screens and air bubbler system will be removed. The cofferdams will be removed from the canal and the canal reshaped to restore its hydraulic capacity.

Installation and removal of the temporary fish screen will disturb approximately 700 square feet of the bed and banks of the existing canal. Approximately 6,000 square feet of the bank surrounding the canal will be disturbed by excavation and backfill for installation of the fish return and bypass pipes. Of this amount, 2,000 square feet will also be disturbed by construction of the new fish screen structure and the site grading surrounding it. Installation of the pipelines will require excavation and replacement of approximately 700 cubic yards of sand and gravel. Installation and removal of the cofferdams in the canal will disturb approximately 1,500 square feet of bed and bank of the canal and will require the placement and removal of approximately 150 cubic yards of sand and gravel.


24-inch fish return pipe with stoplog flow control structure
Temporary Cofferdam
Temporary Cofferdam
Temporary Fish Screen
36-inch bypass pipe with stoplog flow control structure
NOTES:
SURVEY CONTROL:
LEGEND:
PLAN
METHOW VALLEY IRRIGATION DISTRICT
WEST FISH SCREEN STRUCTURE